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Exploring the differences in general practitioner and health care specialist utilization according to education, occupation, income and social networks across Europe: Findings from the European Social Survey (2014) special module on the social determinants of health

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Abstract

Background: Low socioeconomic position (SEP) tends to be linked to higher use of general practitioners (GPs), while the use of health care specialists is more common in higher SEPs. Despite extensive literature in this area, previous studies have, however, only studied health care use by income or education. The aim of this study is, therefore, to examine inequalities in GP and health care specialist use by four social markers that may be linked to health care utilization (educational level, occupational status, level of financial strain and size and frequency of social networks) across 20 European countries and Israel.

Methods: Logistic regression models were employed using data from the 7th round of the European Social Survey; the survey focused upon people aged 25 to 75 years, across 21 countries. Health care utilization was measured according to self-reported use of GP or specialist care within 12 months. Analyses tested four social markers: income (financial strain), occupational status, education and social networks.

Results: We observed a cross-national tendency that countries with higher or equal probability of GP utilization by lower SEP groups had a more consistent probability of specialist use among high SEP groups. Moreover, countries with inequalities in GP use in favour of high SEP groups had comparable levels of inequalities in specialist care utilization. This was the case for 3 social markers (education, occupational class and social networks), while the pattern was less pronounced for income (financial strain).

Conclusion: There are significant inequalities associated with GP and specialist health care use across Europe – with higher SEP groups more likely to use health care specialists, compared to lower SEP groups. In the context of health care specialist use, education and occupation appear to be particularly important factors.

Key words: health care use; socioeconomic position; resources.

Introduction

Equitable access to health care is an important principle in European welfare states. However, despite this principle, previous studies have shown that health care utilization is dependent upon income^{1 2} and educational attainment³. Moreover, studies from Europe have shown that low socioeconomic position (SEP) tends to be linked to higher use of general practitioners (GPs)⁴, while the use of health care specialists appears to be more common among those with higher SEP². Even when this is adjusted for health need, those with higher SEP are still more likely to use a health care specialist.

The more frequent use of specialists among higher SEP groups may be seen as a public health paradox, since there is generally more need for health care among lower SEP groups. It has been suggested that higher SEP groups have more *flexible resources*, such as communication skills or social networks, which enable them to manoeuvre their way from primary to secondary care^{5 6}. This, in turn, may translate into increasing socioeconomic inequalities in health. Identifying the underlying mechanisms behind this inverse care law⁷ could, therefore, provide European welfare states with new tools to reduce the dependency between resources and care.

While others have studied inequalities in health care use^{2 9 10}, this body of work has not been able to explain the inverse relationship between health care specialist use and SEP. We, therefore, use the theory of fundamental causes as a guiding principle to identify social markers that are likely to be linked to health care use. Fundamental cause theory stresses that higher SEP “*embodies an array of resources, such as money, knowledge, prestige, power, and beneficial social connections, that protect health no matter what mechanisms are relevant at any given time*”⁸. Indeed, the use of health care is an important mechanism by which people can protect and promote their health.

These resources may come into play with respect to the utilization of health care in different ways. First, *money* could be used to purchase privatized care from specialists. Second, *power* could be used in order to secure one’s life circumstances¹¹. For example, it is possible that people holding high job positions could access a health care specialist through employer agreements with specialist health care providers. Third, *knowledge* about symptoms, diseases, patient rights, and of the health care system itself may vary by level of education. This assumption implies that those with more health system-relevant knowledge may be more capable of manoeuvring their way through the system to access a specialist. For example, in a free access system, this knowledge could be applied to identify and contact a specialist directly, thereby avoiding the primary care provider³. Next, *prestige* could be defined as the general standing that an individual holds in the eyes of others¹². Prestige is likely to have consequences for health care access¹¹, either indirectly in the form of other resources like money, power, beneficial social connections or more directly, through what a person and/or the social environment believe an individual deserves from them. Finally, while we know that *social networks* are beneficial for health through the social support they provide individuals, particularly through the strength of their ties, they can also be important through the breadth of their ties. For example, the accessibility of knowledge about symptoms, patient rights, the availability of specialists and even the identities of relevant specialists, can increase the likelihood of using a specialist. Thus, having family, friends, co-workers or even health personnel to seek help and advice from could help in coping and navigating through the health care system. Moreover, the personal social network may act as an informal gate keeper to the

health care system by providing insight into personal experience and management of specific symptoms without the need for medical consultation.

Using data from the 7th round of the European Social Survey (ESS), we propose that SEP is a fundamental cause of inequality in health care utilization. Following from this, the overall aim of this study was to examine inequalities in GP and health care specialist use by educational level, occupational status, level of financial strain and size and frequency of social networks across 20 European countries and Israel. As indicated above, each of these indicators are associated with resources that can protect and promote health.

Data and methods

This study was based on data from the 7th round of the European Social Survey (ESS) ¹³. We used data from participants aged 25 to 75 years, restricting our sample size to 31,971 participants. After deleting cases list-wise, our study included 29,637 respondents in 21 countries: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France Germany, Hungary, Ireland, Israel, Lithuania, Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland and United Kingdom. The response rates were overall similar to previous rounds of the ESS ¹⁴ and ranged from 31 per cent in Germany to 68 per cent in the Czech Republic. Individuals with missing data on study variables were excluded.

Study variables

The outcome variables were based on the question: “In the last 12 months, with which of the health professionals on this card have you discussed your health?” GP or medical specialist use was dummy coded as binary variables in separate analyses.

Financial strain was measured by asking respondents how they felt about their household income. Those who reported that they found it ‘difficult’ or ‘very difficult’ living on their present income were coded as experiencing financial strain. These were contrasted with respondents stating that they were coping or living comfortably on their present income. Overall, more than 20 per cent of respondents reported financial strain (Table 1).

The European Socio-Economic Classification of occupation ¹⁵ was used to classify the occupational status of respondents. For this study, three categories were constructed: higher occupational class (professionals, managers), intermediate class (clerical, skilled workers, self-employed with no or a small number of employees) and working class (service, sales workers and unskilled workers combined). These groups were of fairly similar sizes (Table 1).

Education was classified in three categories according to the International Standard Classification of Education (ISCED). The lower educated category included respondents with less than upper secondary education, the middle group with upper secondary education, and the higher educated with tertiary education. Half of the respondents were classified in the middle group, while the other half were split between high and low (Table 1).

Social networks were measured by combining two separate questions: firstly, on how often the respondents socially meet with friends, relatives or work colleagues; and, secondly, on how many people respondents perceive they can discuss intimate and personal matters with. This approach was done to capture both the depth and breadth of social networks. Respondents who attended social meetings between daily and once a week were classified as

having a high frequency of social contact, while respondents who met several times a month or less were included under the low social contact group. Additionally, we distinguished respondents who reported more than three people with whom they could discuss intimate matters with from respondents who had less. Respondents reporting low frequency of social contact and few confidants were contrasted with respondents who had either few confidants but high frequency of social contact, or many confidants but low frequency of social contact, and with respondents with high frequency of social contact and many confidants. Around 25 per cent were placed in the high level group, around 40 per cent in the mid-level group, and around 30 per cent in the low level group.

As control variables, we adjusted for gender, age and self-reported health. Gender was dummy coded, with females assigned the value one. Age was measured in age dummy groups, including respondents from 25 to 75. Self-reported health was dichotomized, based on the question: “How good is your health in general?” The responses ‘very good’ and ‘good’ were coded as good health and used as reference, while ‘fair’, ‘poor’ or ‘very poor’ health were coded as poor health.

Statistical analysis

Logistic regression analyses were applied to estimate the predicted probabilities per country of visiting a GP or a specialist. Analyses were performed using Stata 14.1. We examined the independent effect of each of the four indicators after mutual adjustment. Through this approach it was possible to disentangle to what extent each SEP marker constituted a pathway on its own right to inequalities in health care utilization without being dependent on unfavourable socioeconomic conditions driven by other social status indicators. Results are reported by adjusted risk ratios (ARRs), which were calculated from predicted probabilities, adjusted for need (self-reported health), age and gender. We report 0.1 significance for the included variables.

The results show the adjusted risk ratios of GP and specialist use for the following contrast groups: a high versus low educated group, a high versus a working class occupational group, a high scoring versus a low scoring social networks group and, finally, the financially strained versus the financially comfortable (note reverse coding on this last item, in which the strained are given the value 1). In order to test the robustness of the results, we performed additional analyses for three contrast groups: a high versus middle educated group, a high versus middle class occupational group, and a high scoring versus a middle scoring social networks group (see Figure 2 in Appendix 3, Table 5 and Table 6 in Appendix 4 and 5). The ARRs of these latter contrast groups were found to be comparatively similar to the ARRs of the high-low contrast groups. In order to illustrate the relationship between relative and absolute measures of inequality, Table 7 displays both measures in specialist use by education (see Appendix 6). These results indicate a clear association.

Results

Descriptive results

As illustrated by Table 2, GP use was common among all respondents: overall, 75 per cent of respondents stated they had visited a GP in the last 12 months. The use of health care specialist was less than GPs – with 40 per cent of respondents reporting use within the last 12

months. There was a wide degree of variation between countries – both in terms of GP and specialist use. For example, in Sweden, GP use was less than 60 per cent, whilst in France, it was over 80 per cent. Greater variation was observed for the use of a specialist: in Ireland, Lithuania and Norway, specialist use was under 30 per cent, whilst in Israel and Germany, it was over 60 per cent. There are also notable differences in use by gender: overall, the use of specialists was more than 10 per cent higher among females.

---- Table 1 here ----

---- Table 2 here ----

Regression results

Figure 1 presents the ARR of reporting GP and specialist use in 21 countries according to our four social markers (see Table 3 and Table 4 in Appendix 1 and 2 for exact point estimates and significance testing). The countries are listed according to increasing ARRs (from left to right) of reporting GP visits. We report ARRs in parentheses.

---- Figure 1 here ----

---- Table 3 in Appendix 1 ----

---- Table 4 in Appendix 2 ----

GP use

According to our four markers of SEP, there were several inequalities around GP use. Education was found to be a significant predictor in 6 countries: in Portugal (0.5), Lithuania (0.6) and Ireland (0.7), the higher educated were less likely to use a GP, whilst in Estonia (1.4), Poland (1.4) and Slovenia (1.9), the higher educated were more likely to use a GP. When considering the other countries in the analysis, there was no clear pattern, with around half of countries reporting positive associations with education and GP use, and half reporting negative associations between education and GP use. ARRs varied between the magnitude of 0.4 and 2.

Those in higher occupations were less likely to use a GP in Germany (0.7), while the financially strained were more likely to use a GP in Ireland and Estonia (0.8), and less likely to use a GP in Belgium (1.4) and France (1.6). People with a high social networks score were less likely to use a GP in Poland (0.7), and more likely in Estonia (1.4). In terms of the insignificant results, ARRs related to financial strain were close to 1, and modest for occupation and social networks, with several outliers. ARRs were between 0.6 and 1.6 for occupation and financial strain, and between 0.7 and 1.4 for social networks.

Specialist use

There were significant inequalities in health care specialist use for most of the surveyed countries. The higher educated were more likely to use health care specialists in 11 countries (ARR 1.1-2.0); these were (in ascending order of ARRs): the UK, Sweden, Austria, Norway, Finland, the Czech Republic, France, Germany, Spain, Poland and Portugal. Poland (1.6) and Portugal (2.0) had the highest inequalities associated with specialist use and education. In terms of the insignificant results, the remaining countries all reported greater use of health care specialists among the higher educated.

Significant occupational inequalities in specialist use were found in 10 countries, where the higher occupations were more likely to report visits (ARR 1.1-1.4); these were (in ascending

order of ARR): Ireland, Sweden, Finland, Hungary, the Czech Republic, Estonia, Denmark, France, Switzerland and Austria). In terms of the insignificant results, the majority of the remaining countries reported greater specialist use among those with higher occupations.

There were significant inequalities in specialist use associated with financial strain in two countries: Israel (0.8) and Poland (1.1). Respondents with a high social networks score were more likely to report specialist visits in 6 countries (1.1-1.3); these were (in ascending order of ARR): Norway, Finland, France, Estonia, the Czech Republic and Austria). In terms of the insignificant results, there were no clear inequalities due to financial strain and social networks.

Some countries were notable for having inequalities across several markers: Austria, France, the Czech Republic and Finland all demonstrated significant inequalities for education, occupation and social networks.

Interestingly, considerable variation was found in the distribution of GP utilization among countries with higher inequality in specialist utilization. For instance, in more than half of the countries where the high educated group are more likely to use specialist care an inverse association was observed between education and GP utilization. Concerning occupational and social networks, GP utilization probability was equitably distributed in most of the countries that demonstrated significant inequalities in specialist utilization in favour of high SES. Whereas in the few countries that GP utilization was more likely among high SES there was a more consistent positive association between SES and specialist utilization.

Discussion

The main finding of this study was the observed tendency that countries with higher or equal probability of GP utilization by lower SEP groups had a more consistent probability of specialist care use among higher SEP groups. Moreover, countries with inequalities in GP use in favour of high SEP groups had comparable levels of inequalities in specialist care utilization. This was observed after adjusting for health need and was found to be the case for several countries for education, occupational class and social networks, while the pattern was less pronounced for financial strain.

Therefore, in countries with a higher probability of GP utilization among lower SEP groups, people from higher SEP groups were more likely to use secondary care, even for the same level of need as lower status groups. We hypothesise that this is because higher SEP groups have more flexible resources available that can help obtain such care to a greater extent compared to lower SEP groups. The fact that inequalities in health care use may stem from the availability of resources may explain why we find larger socioeconomic inequalities in mortality for amenable causes of death in Europe, as compared to less preventable causes^{8 16}.

The main finding of this study was the observed tendency that countries with higher or equal probability of GP utilization by lower SEP groups had consistent higher probability of specialist care use among higher SEP groups.. This was observed after adjusting for health need and was found to be the case for several countries for education (PT, NO, CZ, UK, AT, FI, ES, SE, FR), occupational class (SE, CH, EE, FR, CZ, AT, HU, DK) and social networks (CZ, NO, AT, FI), while this was not observed for financial strain. Moreover, countries with

inequalities in GP use in favour of high SEP groups such as Poland, Estonia, Belgium and France tend to preserve a positive association between high SES and specialist utilization and in some instances demonstrated comparable levels of inequalities in specialist care utilization.

Therefore, independently of the distribution of GP utilization, across all countries and social markers/social stratification measures (with exception of financial strain), people from higher SEP groups were more likely to use secondary care, even for the same level of need as lower status groups. We hypothesise that this is because higher SEP groups have more flexible resources available that can help obtain such care to a greater extent compared to lower SEP groups. The fact that inequalities in health care use may stem from the availability of resources may explain why we find larger socioeconomic inequalities in mortality for amenable causes of death in Europe, as compared to less preventable causes^{8 16}.

Inequalities in specialist use were larger compared to GP use, which is in line with the overall picture that those with higher SEP utilize more specialist care. In particular, these inequalities were mainly related to education and occupation, which were demonstrated in around half of the countries. People in different SEP groups may have different preferences for who they consult with in the health care system³. For example, those with lower SEP may prefer to communicate with their GP compared to a specialist, as a GP could be perceived as more trustworthy and capable of discussing a disease with a particular patient; forming a relationship with a GP could be an important factor in this regard. On the other hand, people with high SEP may be more interested in consulting with a specialist because of the wish to consult with someone who possesses special knowledge within a specific field of competence. Such preferences may be associated with knowledge about the health care system, which may be related to resources like education. Further qualitative work, exploring different experiences for people accessing health care between high and low SEP groups across European welfare states would be valuable.

With regards to social networks, the findings were less conclusive. One possible reason might be that the size of one's personal network does not necessarily relate to superior access to health care, if the connections within the network do not have good access to resources themselves. Further research should, therefore, investigate how the 'quality' and type of social network (e.g. friends versus family members) influences health care utilization.

Somewhat surprisingly, the least inequalities in specialist use were found between the financially comfortable and the financially strained. Given our findings – which are in contrast to previous literature (e.g. Van Doorslaer *et al*²) – it could be argued that income is perhaps the least flexible indicator of SEP. Although education, occupation and income are tightly interwoven markers of socio-economic position, it appears that income is contingent upon educational and occupational status to gain better access to specialist health services. Drawing on the work of Pierre Bourdieu¹⁷, we suggest that the accumulated resources of money, knowledge, prestige, power, and social connections together constitute a form of *health systems capital*. In this study, whenever a marker of inequality is significant, it depicts only its independent contribution to inequalities in access to health care. For individuals who are at the intersection of different social positions, the combination of these markers has a synergic effect on their probability of accessing health care. This effect could be positive or negative, depending on the accumulation of advantageous and disadvantageous positions, which seems especially to be the case for access to specialist care.

Education stands out in our study as a particularly important indicator of health care utilization. Previous studies have also indicated that education is a stronger determinant of

health care use compared to income and employment status^{18 19}. Indeed, a study by Stirbu *et al.*³ showed that educational inequalities were present in all countries after adjusting for self-reported health. We acknowledge that higher education consistently yields better wages, more knowledge, more prestige, more power and more valuable social connections, but it appears that education as an overall indicator is important predictor for health care utilization – especially considering our findings that the fewest inequalities were found between utilization and financial resource. The benefits of education may also be true for occupation but, according to our results, it seems that the occupational hierarchy does not work as an equally strong predictor for health care use.

Austria, France, Czech Republic and Finland all demonstrated inequalities in specialist use for the markers education, occupation and social networks. With the exception of Czech Republic, these countries also seem to have a higher use of health care specialists. This could also point to system-related reasons, such as the organization of health care, expenditure, financing and access regulation²⁰. Still, we were not able to find systematic variations between these factors and the degree of inequalities. Wendt and Kohl²¹ have argued that there is only a weak correlation between the financial resources invested in a nation's health and the level of health employment, such as health care providers. It should be noted, however, that our study showed that Portugal, which has the lowest total health expenditure among our countries²², actually had the largest educational inequalities in specialist use. Portugal also has a relatively high level of private out of pocket (OOP) payments²³.

Access regulation includes different dimensions, such as the remuneration of GPs, which can be paid fee-for-service (e.g. France), per capita (the number of patients on the list) (e.g. the UK), or by fixed salary (e.g. Portugal)²⁰. This is likely to affect the actual use of such services; for example, a fee-for-service payment may set an incentive for doctors to see their patients often, while payment per capita or a fixed salary may give an incentive to reduce the number of patient visits^{23 24}. A second dimension relates to whether patients have free access to GPs or whether they have to sign onto a GP's list for a longer period, which is referred to as 'gatekeeping'²³. Patients may also have varying options in different countries when consulting a specialist. They may have a free choice and direct access to a specialist, need a referral by a GP, or be able to skip the referral system by accepting a higher co-payment²⁵. Concerning access regulation, there are differences between the respective countries regarding the difficulty of obtaining specialist health care services. In countries with a classic GP gatekeeping system (such as the UK, the Netherlands, Portugal, Denmark, Finland and Norway), a patient would need a GP referral to access a health care specialist; moreover, and more importantly, the GP would have to view this referral as appropriate. In other countries, patients can access health care specialists and secondary care (such as Belgium, France and Germany) without the need for a GP gatekeeper. There may be more equality – in terms of specialist health care use – by applying a strong gate keeping system with one such example being the use of clinical guidelines^{3 26}. Indeed, in many countries, clinical guidelines are increasingly becoming a part of regular clinical practice; they have the aim of improving consistency of care²⁷. Enabling systems to achieve this is important, as previous work has shown that patients with identical clinical problems can receive different care, depending on their individual circumstances²⁸.

Based on the description of health care systems, there should at least be theoretical reasons to expect different health care use across Europe. However, none of the above-mentioned system characteristics seem to be able to explain the inequalities found in this study. Despite the different organization of health care systems, we found a pattern of different use of GPs and

specialist care for people across different SEP indicators. This finding is in line with Stirbu *et al.*³ and Van Doorslaer *et al.*², who found a general pattern of differential access to primary and secondary care across different SEP groups. The universal pattern indicates that lower SEP groups “encounter barriers that are common in all countries, and thus lie beyond the national structure and organisation of the health care system”³.

Limitations

We acknowledge that the current study uses survey data. Although the ESS maintains the highest standard of data collection, the survey is still prone to differences in response rates, and cross-cultural quality of questions. For a further discussion on the strengths and weaknesses of the ESS, see Eikemo *et al.*¹⁴. We also acknowledge some methodological limitations in our work; for example, the data used in our analysis utilized a binary variable on whether respondents have used a GP or health care specialist within the last 12 months, meaning only limited information is captured regarding actual health care use. Clearly, a person using a GP or health care specialist every week should be considered differently to a person using such services once every year. Other studies^{1-3 29} have accounted for this by measuring the frequency of GP and specialist consultations within a 12-month period, which implies that our study is not entirely comparable to previous work. We also acknowledge that the division of labour between GP and health care specialists varies between countries (e.g. in some countries GPs have extended training enabling them to consult with patients who would have otherwise required referral to a specialist). As we have only examined a limited aspect of health care use, we cannot draw conclusions on the quality of health care. Even though high SEP groups are more likely to use specialist care, this type of health care is not necessarily better compared to GP use. More care may not always be better, leading to a prolonged life and being a cause of the social gradient in mortality. The complexity of these matters is illustrated by the discussion of protecting patients from overtreatment³⁰. The results should therefore be interpreted with caution. Nonetheless, and despite these limitations, we are confident that our findings are robust and have important implications for policy makers across Europe regarding health care access.

Conclusion

There are significant inequalities associated with GP and specialist health care use across Europe – with higher SEP groups more likely to use health care specialists, compared to lower SEP groups; this finding was observed after controlling for health need. In the context of health care specialist use, education and occupation appear to be particularly important factors. Future work should seek to explore why these inequalities occur among the different health care systems.

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Descriptive statistics for GP and specialist use

Table 1: Descriptive statistics for the pooled sample.

	N	percent	(percent) GP util.	(percent) Spec. util.
<i>GP util.</i>				
Yes	22 126	74,7		
No	7 511	25,3		
<i>Specialist util.</i>				
Yes	12 690	42,8		
No	16 947	57,2		
<i>Age</i>				
25-59	20 777	70,1	71,3	39,1
60-75	8 860	29,9	82,5	51,6
<i>Gender</i>				
Female	15 357	52,5	78,4	47,9
Male	13 867	47,5	70,5	37,1
<i>Self-reported health</i>				
Good health	20 084	67,7	69,6	35
Poor health	9 553	32,2	85,4	59,1
<i>Financial strain</i>				
No	23 348	78,8	73,8	42,4
Yes	6 289	21,2	77,8	44,3
<i>Education</i>				
High	7 923	26,7	72,4	46,4
Middle	15 553	52,5	74,4	42,2
Low	6 161	20,8	78,3	39,8
<i>Occupational class</i>				
High	10 810	36,5	74,1	47
Middle	7 893	26,6	74,2	42,9
Working class	10 934	39,9	75,6	38,6
<i>Social networks</i>				
High level	7 138	24,1	74,1	46,5
Moderate level	12 863	43,4	75,1	43
Low level	9 636	32,5	74,6	39,9

Descriptive statistics for GP and specialist use

Table 2: National prevalences of GP and specialist use.

	GP util. percent	Spec. util. percent
Austria	78,1	49,7
Belgium	82,0	45,9
Czech Rep	74,6	35,7
Denmark	78,6	40,56
Estonia	72,6	51,3
Finland	68,4	42,3
France	83	49,9
Germany	81,7	64,1
Hungary	66,5	32,2
Ireland	70,8	19,3
Israel	82,2	61,9
Lithuania	69,3	27,8
Netherlands	72,1	44,6
Norway	79	29,8
Poland	70,4	47,9
Portugal	81,6	42
Slovenia	79,2	43,2
Spain	78	48,8
Sweden	56	35,6
Switzerland	68,7	41,4
UK	75,6	34,3
<i>Pooled</i>	<i>74,7</i>	<i>42,8</i>

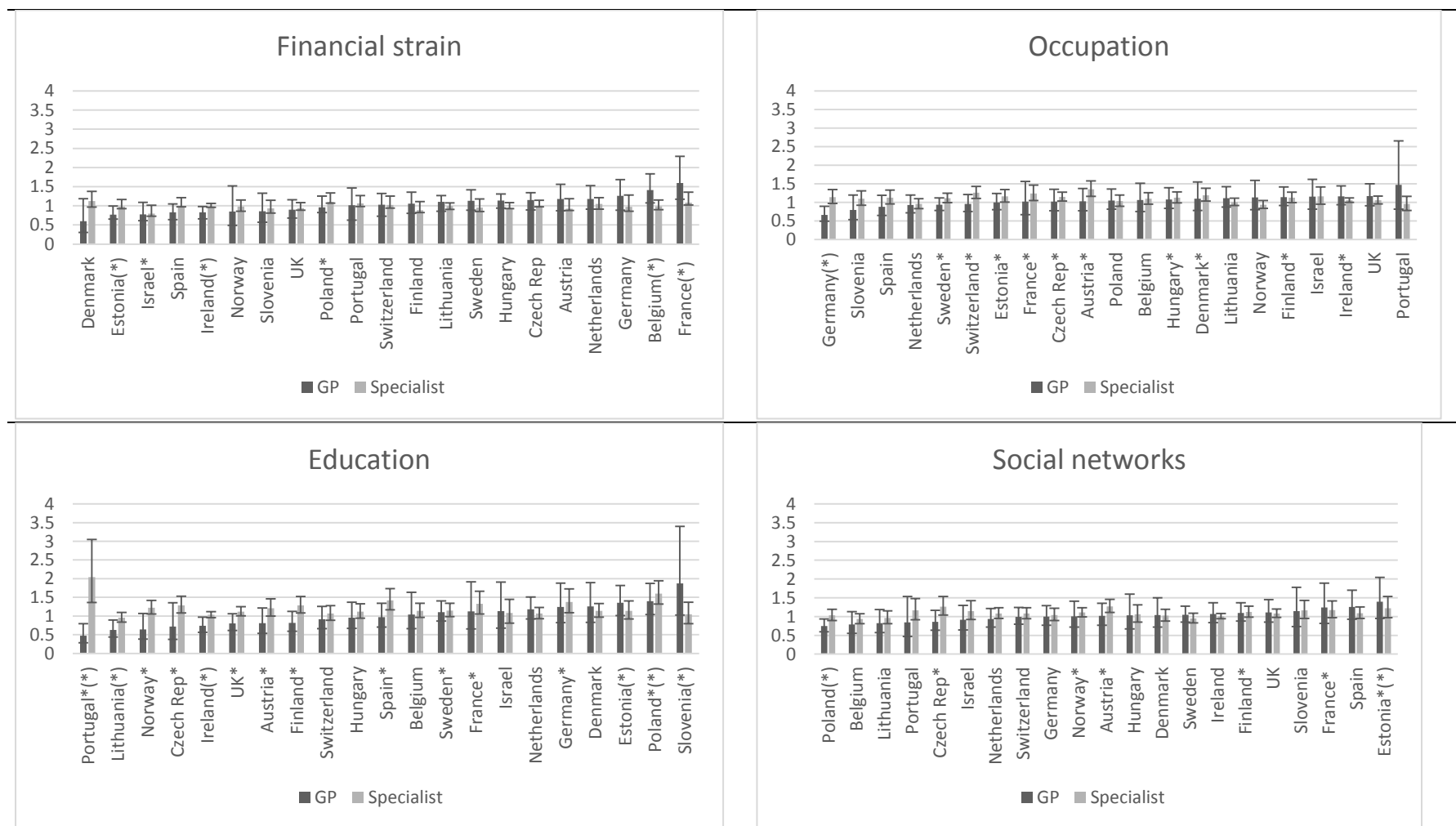


Figure 1: Inequalities (ARRs) in GP and specialist use by financial strain, occupation, education and social networks. Significant estimates marked ($p < 0.1$).
 (*) Significant results for GP use. * Significant results for specialist use.

Appendix 1: Adjusted risk ratios (ARRs)

Table 3: Inequalities (ARRs) in GP use by financial strain, occupation, education and social networks.

	Financial strain	CI	CI	Occupation	CI	CI	Education	CI	CI	Social networks	CI	CI
Austria	1.2	0.9	1.6	1.0	0.8	1.4	0.8	0.5	1.2	1.0	0.8	1.4
Belgium	1.4*	1.1	1.8	1.1	0.7	1.5	1.0	0.7	1.6	0.8	0.6	1.1
Czech Rep	1.1	0.9	1.3	1.0	0.8	1.4	0.7	0.4	1.4	0.9	0.6	1.2
Denmark	0.6	0.3	1.2	1.1	0.8	1.6	1.3	0.8	1.9	1.0	0.7	1.5
Estonia	0.8*	0.7	1.0	1.0	0.8	1.2	1.4*	1.0	1.8	1.4*	1.0	2.0
Finland	1.1	0.8	1.4	1.1	0.9	1.4	0.8	0.6	1.1	1.1	0.9	1.4
France	1.6*	1.2	2.3	1.0	0.7	1.6	1.1	0.7	1.9	1.2	0.8	1.9
Germany	1.3	0.9	1.7	0.7*	0.5	0.9	1.2	0.8	1.9	1.0	0.8	1.3
Hungary	1.1	0.9	1.3	1.1	0.8	1.4	1.0	0.7	1.4	1.0	0.7	1.6
Ireland	0.8*	0.7	1.0	1.2	0.9	1.4	0.7*	0.6	1.0	1.1	0.8	1.4
Israel	0.8	0.6	1.1	1.2	0.8	1.6	1.1	0.7	1.9	0.9	0.6	1.3
Lithuania	1.1	0.9	1.3	1.1	0.9	1.4	0.6*	0.4	0.9	0.8	0.6	1.2
Netherlands	1.2	0.9	1.5	0.9	0.7	1.2	1.2	0.9	1.5	0.9	0.7	1.2
Norway	0.9	0.5	1.5	1.1	0.8	1.6	0.6	0.4	1.1	1.0	0.7	1.4
Poland	1.0	0.8	1.3	1.1	0.8	1.4	1.4*	1.0	1.9	0.7*	0.6	0.9
Portugal	1.0	0.6	1.5	1.5	0.8	2.7	0.5*	0.3	0.8	0.8	0.5	1.5
Slovenia	0.9	0.6	1.3	0.8	0.5	1.2	1.9*	1.0	3.4	1.1	0.7	1.8
Spain	0.8	0.6	1.1	0.9	0.7	1.2	1.0	0.7	1.3	1.3	0.9	1.7
Sweden	1.1	0.9	1.4	0.9	0.8	1.1	1.1	0.9	1.4	1.0	0.9	1.3
Switzerland	1.0	0.7	1.3	1.0	0.8	1.2	0.9	0.7	1.3	1.0	0.8	1.2
UK	0.9	0.7	1.2	1.2	0.9	1.5	0.8	0.6	1.1	1.1	0.9	1.4

*p < 0.1.

Appendix 2: Adjusted risk ratios (ARRs)

Table 4: Inequalities (ARRs) in specialist use by financial strain, occupation, education and social networks.

	Financial strain	CI	CI	Occupation	CI	CI	Education	CI	CI	Social networks	CI	CI
Austria	0.9	0.9	1.2	1.4*	1.2	1.6	1.2*	1.0	1.5	1.3*	1.1	1.5
Belgium	1.0	0.9	1.2	1.1	1.0	1.3	1.1	1.0	1.3	0.9	0.8	1.1
Czech Rep	1.0	1.0	1.1	1.1*	1.0	1.3	1.3*	1.1	1.5	1.3*	1.0	1.5
Denmark	1.1	1.0	1.4	1.2*	1.0	1.4	1.1	1.0	1.3	1.0	0.9	1.2
Estonia	1.0	0.9	1.2	1.2*	1.0	1.3	1.1	0.9	1.4	1.2*	1.0	1.5
Finland	0.9	0.8	1.1	1.1*	1.0	1.3	1.3*	1.1	1.5	1.1*	1.0	1.3
France	1.1	1.0	1.4	1.2*	1.0	1.5	1.3*	1.1	1.7	1.2*	1.0	1.4
Germany	1.0	0.9	1.3	1.1	1.0	1.3	1.4*	1.1	1.7	1.0	0.9	1.2
Hungary	0.9	0.9	1.1	1.1*	1.0	1.3	1.1	0.9	1.3	1.1	0.9	1.3
Ireland	1.0	1.0	1.1	1.1*	1.0	1.1	1.0	1.0	1.1	1.0	0.9	1.1
Israel	0.8*	0.7	1.0	1.2	1.0	1.4	1.1	0.8	1.4	1.1	0.9	1.4
Lithuania	1.0	0.9	1.1	1.0	0.9	1.1	1.0	0.8	1.1	1.0	0.8	1.1
Netherlands	1.0	0.9	1.2	1.0	0.8	1.1	1.1	0.9	1.2	1.1	0.9	1.2
Norway	1.0	0.9	1.2	0.9	0.8	1.0	1.2*	1.1	1.4	1.1*	1.0	1.2
Poland	1.1*	1.1	1.3	1.0	0.9	1.2	1.6*	1.3	1.9	1.0	0.9	1.2
Portugal	1.1	1.0	1.3	1.0	0.8	1.2	2.0*	1.4	3.0	1.2	0.9	1.5
Slovenia	0.9	0.8	1.1	1.1	0.9	1.3	1.0	0.8	1.4	1.2	0.9	1.4
Spain	1.0	1.0	1.2	1.1	1.0	1.3	1.4*	1.2	1.7	1.1	0.9	1.3
Sweden	1.0	0.9	1.2	1.1*	1.0	1.2	1.1*	1.0	1.3	1.0	0.8	1.1
Switzerland	1.0	0.9	1.3	1.3*	1.1	1.4	1.1	0.9	1.3	1.1	0.9	1.2
UK	0.9	0.9	1.1	1.1	1.0	1.2	1.1*	1.0	1.3	1.1	1.0	1.2

*p < 0.1.

Appendix 3

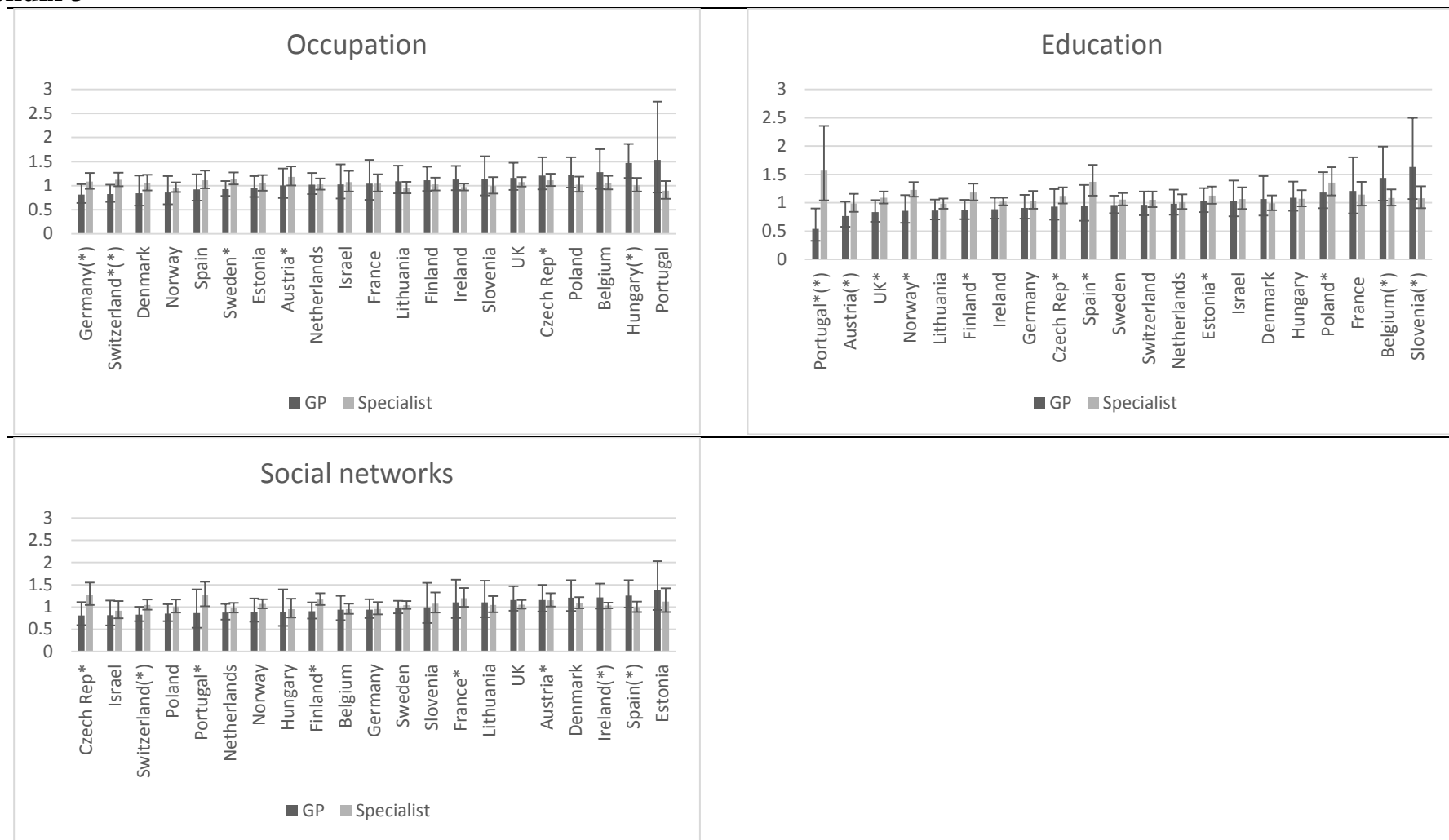


Figure 2: Inequalities (ARRs) in GP and specialist use by occupation, education and social networks (high-middle group). Significant estimates marked ($p < 0.1$).
(*) Significant results for GP use. * Significant results for specialist use.

Appendix 4: Adjusted risk ratios (ARRs) (high-middle group)

Table 5: Inequalities (ARRs) in GP use by occupation, education and social networks (high-middle group).

	Occupation	CI	CI	Education	CI	CI	Social networks	CI	CI
Austria	1.0	0.7	1.4	0.8*	0.6	1.0	1.2	0.9	1.5
Belgium	1.3	0.9	1.8	1.4*	1.0	2.0	0.9	0.7	1.3
Czech Rep	1.2	0.9	1.6	0.9	0.7	1.2	0.8	0.6	1.1
Denmark	0.8	0.6	1.2	1.1	0.8	1.5	1.2	0.9	1.6
Estonia	1.0	0.8	1.2	1.0	0.8	1.3	1.4	0.9	2.0
Finland	1.1	0.9	1.4	0.9	0.7	1.1	0.9	0.7	1.1
France	1.0	0.7	1.5	1.2	0.8	1.8	1.1	0.8	1.6
Germany	0.8*	0.6	1.0	0.9	0.7	1.1	0.9	0.7	1.2
Hungary	1.5*	1.2	1.9	1.1	0.9	1.4	0.9	0.6	1.4
Ireland	1.1	0.9	1.4	0.9	0.7	1.1	1.2*	1.0	1.5
Israel	1.0	0.7	1.4	1.0	0.8	1.4	0.8	0.6	1.1
Lithuania	1.1	0.8	1.4	0.9	0.7	1.1	1.1	0.8	1.6
Netherlands	1.0	0.8	1.3	1.0	0.8	1.2	0.9	0.7	1.1
Norway	0.9	0.6	1.2	0.9	0.6	1.1	0.9	0.7	1.2
Poland	1.2	1.0	1.6	1.2	0.9	1.5	0.9	0.7	1.1
Portugal	1.5	0.9	2.7	0.5*	0.3	0.9	0.9	0.5	1.4
Slovenia	1.1	0.8	1.6	1.6*	1.1	2.5	1.0	0.6	1.5
Spain	0.9	0.7	1.2	0.9	0.7	1.3	1.3*	1.0	1.6
Sweden	0.9	0.8	1.1	1.0	0.8	1.1	1.0	0.9	1.1
Switzerland	0.8*	0.7	1.0	1.0	0.8	1.2	0.8*	0.7	1.0
UK	1.2	0.9	1.5	0.8	0.7	1.0	1.2	0.9	1.5

*p < 0.1.

Appendix 5: Adjusted risk ratios (ARRs) (high-middle group)

Table 6: Inequalities (ARRs) in specialist use by occupation, education and social networks (high-middle group).

	Occupation	CI	CI	Education	CI	CI	Social networks	CI	CI
Austria	1.2*	1.0	1.4	1.0	0.8	1.2	1.2*	1.0	1.3
Belgium	1.1	0.9	1.2	1.1	0.9	1.2	1.0	0.8	1.1
Czech Rep	1.1*	1.0	1.2	1.1*	1.0	1.3	1.3*	1.0	1.5
Denmark	1.0	0.9	1.2	1.0	0.9	1.1	1.1	1.0	1.2
Estonia	1.0	0.9	1.2	1.1*	1.0	1.3	1.1	0.9	1.4
Finland	1.0	0.9	1.2	1.2*	1.0	1.3	1.2*	1.0	1.3
France	1.0	0.9	1.2	1.1	1.0	1.4	1.2*	1.0	1.4
Germany	1.1	0.9	1.3	1.0	0.9	1.2	1.0	0.8	1.1
Hungary	1.0	0.9	1.2	1.1	0.9	1.2	1.0	0.8	1.2
Ireland	1.0	0.9	1.0	1.0	1.0	1.1	1.0	1.0	1.1
Israel	1.1	0.9	1.3	1.1	0.9	1.3	0.9	0.7	1.1
Lithuania	1.0	0.8	1.1	1.0	0.9	1.1	1.0	0.9	1.2
Netherlands	1.0	0.9	1.2	1.0	0.9	1.1	1.0	0.9	1.1
Norway	1.0	0.9	1.1	1.2*	1.1	1.4	1.1	1.0	1.2
Poland	1.0	0.9	1.2	1.4*	1.1	1.6	1.0	0.9	1.2
Portugal	0.9	0.7	1.1	1.6*	1.0	2.4	1.3*	1.0	1.6
Slovenia	1.0	0.8	1.2	1.1	0.9	1.3	1.1	0.9	1.3
Spain	1.1	0.9	1.3	1.4*	1.1	1.7	1.0	0.9	1.1
Sweden	1.1*	1.0	1.3	1.1	1.0	1.2	1.0	1.0	1.1
Switzerland	1.1*	1.0	1.3	1.1	0.9	1.2	1.0	0.9	1.2
UK	1.1	1.0	1.2	1.1*	1.0	1.2	1.1	1.0	1.2

*p < 0.1.

Appendix 6: Relative and absolute inequalities

Table 7: Relative and absolute inequalities in specialist utilization by education, in rising order of relative inequalities.

<i>Education</i>	Specialist	
	<i>ARR</i>	<i>ARD</i>
Lithuania	1.0	-0.03
Ireland	1.0	0.03
Slovenia	1.0	0.03
Switzerland	1.1	0.04
Netherlands	1.1	0.04
Israel	1.1	0.03
Hungary	1.1	0.08
UK	1.1	0.08
Denmark	1.1	0.08
Belgium	1.1	0.07
Estonia	1.1	0.07
Sweden	1.1	0.09
Austria	1.2	0.11
Norway	1.2	0.14
Finland	1.3	0.15
Czech Rep	1.3	0.17
France	1.3	0.15
Germany	1.4	0.13
Spain	1.4	0.17
Poland	1.6	0.25
Portugal	2.0	0.35